Subj File

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 16 1994

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Response to the Methyl Bromide Reregistration Standard: Processing studies (MRID#'s 43287001, 43247401, 43278701 and 43343401, CBRS Nos. 13845, 13999, 14015 and 14265, Barcode Nos. D204238, D205160, D205462 and D206950).

FROM: R. B. Perfetti, Ph.D., Chemist
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THRU: William J. Hazel, Ph.D., Section Head
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TO: Esther Saito, Chief
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Attached is a review of processing studies submitted in response to the methyl bromide Reregistration Standard. This review was completed by Dynamac Corporation under supervision of CBRS, HED. It has undergone secondary review in the branch and has been revised to reflect Agency policies.

1. The apple processing studies are adequate. Methyl bromide residues did not concentrate in wet pomace or juice. No food/feed additive tolerance is required.

2. A succulent bean processing study was submitted. However, this study is not reviewed here as the Agency no longer considers bean cannery waste to be a regulated livestock feed item.

3. The grape processing studies are adequate. Residues did not concentrate in wet pomace or juice processed from grapes bearing measurable methyl bromide residues. No food or feed additive tolerance is required.

4. The citrus processing study is adequate. Residues did not

concentrate in wet pulp, juice, or oil processed from oranges bearing measurable methyl bromide residues. No food or feed additive tolerance is required.

5. The sweet corn processing study is adequate. Methyl bromide residues did not concentrate in sweet corn cannery waste. No feed additive tolerance is required.

6. The tomato processing study is adequate. The data indicate the methyl bromide residues did not concentrate in wet tomato pomace or in canned juice. No food or feed additive tolerance is required.

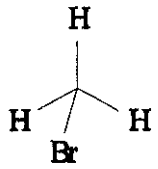
A revised Tentative Residue Chemistry Summary sheet is included.

If you need additional input please advise.

Attachment 1: MeBr Processing studies Review.

cc (With Attachment 1): RBP, MeBr Reregistration Standard File, MeBr Subject File and RF.

METHYL BROMIDE



Shaughnessy No. 053201; Case 0335

(CBRS Nos. 13845, 13999, 14015, 14265;

DP Barcodes D204238, D205160, D205462, D206950)

Task 4

REGISTRANT'S RESPONSE TO RESIDUE CHEMISTRY DATA REQUIREMENTS

BACKGROUND

The Methyl Bromide Reregistration Standard Update (6/91) required data depicting residues of methyl bromide in processed fractions from fumigated raw agricultural commodities bearing measurable residues. In response, the Methyl Bromide Industry Panel (MBIP) has submitted processing studies on succulent beans and sweet corn (1994; MRID 43287001), tomatoes (1994; MRID 43247401), apples, grapes, and oranges (1994; MRIDs 43278701), and a separate study on apple juice and grape juice (1994; MRID 43343401). These data are reviewed here to determine their adequacy in fulfilling residue chemistry data requirements. The Conclusions and Recommendations stated in this document pertain only to the magnitude of the residue in processed plant commodities.

The qualitative nature of the residue in plants is adequately understood; the residue of concern is methyl bromide *per se* (R. Perfetti, CBRS No. 8601, 9/24/91). The nature of the residue in animals is not adequately understood. Tolerances for residues of methyl bromide in/on food and feed commodities are currently expressed in terms of inorganic bromide [40 CFR §180.123, §180.199 and §185.3480]. However, the Agency has determined that inorganic bromide is not of toxicological concern and is requiring the registrant to propose tolerances for methyl bromide to replace the inorganic bromide tolerances. As there are no Codex MRLs for residues of methyl bromide, there are no questions with respect to Codex/U.S. tolerance compatibility.

An adequate method is available for enforcement of the current tolerances for inorganic bromide and is listed in PAM, Vol. II as Method I. For determining residues of methyl bromide *per se*, a GC/ECD headspace assay method [King et al., *J. Agric. Food Chem.*, 29(5), 1003-1005, 1981] is available for data collection and tolerance enforcement. The limit

of detection for methyl bromide is 0.01 ppm. This method has been forwarded to the FDA for inclusion in PAM, Vol. II as Method A.

CONCLUSIONS/RECOMMENDATIONS

1. The apple processing studies are adequate. Methyl bromide residues did not concentrate in wet pomace or juice. No food/feed additive tolerance is required.

2. A succulent bean processing study was submitted. However, this study is not reviewed here as the Agency no longer considers bean cannery waste to be a regulated livestock feed item.

3. The grape processing studies are adequate. Residues did not concentrate in wet pomace or juice processed from grapes bearing measurable methyl bromide residues. No food or feed additive tolerance is required.

4. The citrus processing study is adequate. Residues did not concentrate in wet pulp, juice, or oil processed from oranges bearing measurable methyl bromide residues. No food or feed additive tolerance is required.

5. The sweet corn processing study is adequate. Methyl bromide residues did not concentrate in sweet corn cannery waste. No feed additive tolerance is required.

6. The tomato processing study is adequate. The data indicate the methyl bromide residues did not concentrate in wet tomato pomace or in canned juice. No food or feed additive tolerance is required.

DETAILED CONSIDERATIONS

Residue Analytical Methods

In conjunction with the methyl bromide processing studies, the registrant submitted a method description for the analysis of methyl bromide residues in raw agricultural and processed commodities. Residues of methyl bromide were determined using the modified King GC/ECD headspace method #93-001. This method was reviewed by the Agency (C. Deyrup, CB No. 3890, 7/14/88; and CB No. 4399, 11/3/88) and deemed adequate as an enforcement method for analysis of methyl bromide *per se* on plants. In addition, this method has been deemed adequate for data collection on fruiting vegetables, cereal grains, small fruits and berries, and citrus fruits (CBRS Nos. 12733 and 12751, DP Barcodes D196317 and D196312, R. Perfetti, 4/7/94).

Briefly, frozen samples are blended with water in a sealed container equipped with a sampling port. Residues are released by heating in a water bath to 26.7 C. The headspace is sampled and residues are determined by GC/ECD. The residues are quantitated by comparison with a matrix standard curve, which is generated through the analysis of fortified control samples of each commodity. A solvent standard curve was also generated to monitor instrument performance and fortification technique. Analyses for the current submissions were preformed by Bolsa Research Associates, Hollister, CA.

Method validation data were submitted for apple, grape, and orange RACs. Three fortified control samples of each matrix were analyzed for each fortification level. Recoveries ranged 85-123% and are detailed in Table 1. Concurrent recovery data were submitted with each study representing two to four fortified control samples of the RAC and processed fractions. Recoveries (Table 2) ranged 75-114% with 135% recovered from a single sample of grape pomace. Chromatograms and sample calculations were provided. Apparent residues of methyl bromide were below the LOQs in control samples of all matrices.

The reported limits of quantitation (LOQs), presented in Table 2, were defined as: (i) the lowest fortification level of any control sample analyzed during method validation or concurrently that yielded adequate recoveries (70-120%); or (ii) the lowest acceptable fortification level in any matrix standard curve generated on the day of sample analysis.

The modified King headspace method (Method #93-001) is adequate for collecting data on residues of methyl bromide in sweet corn, apples, grapes, oranges, tomatoes and their processed fractions.

Table 1. Method recoveries of methyl bromide from fortified control samples.

Commodity	Fortification Level (ppm)	% Recovery
Apples	1.658	85-99
	4.973	106-119
	49.364	96-105
Grapes	1.989	107-111
	14.809	110-115
	29.618	99-110
Oranges	1.989	88-102
	7.405	85-93
	14.809	110-123

Table 2. Concurrent method recovery of methyl bromide from fortified control samples.

Commodity	LOQ (ppm)	Fortification Level (ppm)	% Recovery
Apples	4.973	4.973-37.023	84-114
Apple juice	0.497	0.995-3.702	99-108
Apples	1.658	6.630, 24.682	92, 99
Apple wet pomace	0.995	2.984-7.405	90-104
Grapes	2.486	9.256, 27.767	91, 75
Grape juice	0.055	0.055-0.995	80-97
Grapes	3.315	24.682	91
Grape wet pomace	0.111	0.995-1.989	97-112, 135
Oranges	1.492	1.492	93
Orange juice	0.111	0.497-1.481	94-100
Orange wet pulp	0.017	0.017-0.222	90-100
Orange oil	0.019	0.0478-0.0738	86-99
Sweet corn	2.486	18.511	98
Sweet corn cannery waste	0.746	1.243-3.729	79-95
Tomatoes	9.256	37.023	79, 90
Tomato wet pomace	0.0057	0.0115-0.0277	90-104
Tomato juice	0.0057	0.0086-0.0115	79-87

Storage Stability Data

The Agency (N. Dodd, CBRS No. 6879, 7/30/90) has concluded that residues of methyl bromide in/on raw agricultural commodities (RACs) are stable when samples are stored on dry ice for up to 12 hours, and that storage stability data are necessary only for samples stored in excess of 12 hours.

In the current submissions all samples were analyzed within ~12 hours of sampling with the exception of the unwashed tomato RAC samples that were collected immediately following fumigation (RAC 1) and two orange oil samples. The RAC 1 tomato and orange oil samples were analyzed within 15 and 20.5 hours of collection, respectively. The orange oil samples were used to demonstrate storage stability as two additional orange oil samples were analyzed within 8 hours of sample collection. For the tomatoes, the conclusions regarding the concentration factors are based on residue data from the unwashed RAC samples collected at the processing facility 4 hours after fumigation (RAC 2). Therefore, the delay in analysis of the tomato RAC 1 samples has no effect on the outcome of this study. No additional storage stability data are required.

Magnitude of the Residue in Processed Food/Feed Commodities

Directions for use

Two methyl bromide end-use products (100% PrGs, EPA Reg. Nos. 5785-11 and -41) are currently registered for post-harvest use on the subject crops. The maximum allowable use rates are summarized in Table 3.

Table 3. Label uses of methyl bromide on fumigated commodities.

Commodity	Rate (lb ai/1000 ft^3)	Exposure time (hours)
Apples	5	2
Corn	3	4
Grapes	4	2
Oranges	3	2
Tomatoes	3	4

Seven processing studies were conducted with apples (two studies), grapes (two studies), oranges, sweet corn, and tomatoes. These studies are adequate with respect to the target fumigation rates and conditions specified in the approved protocol. RAC samples in typical commercial packaging were placed on pallets within a temperature controlled (~ 10 C) fumigation chamber. The chamber was a former ocean-going shipping container with a volume of 1165 ft^3. Plastic coverings were removed from commodity packages or serrated prior to fumigation. Filler commodities were added to bring the chamber load to ~ 10%. Following fumigation, the chamber was forced-air ventilated until the methyl bromide concentration in the chamber reached ≤ 5 ppm (2 hours). The actual fumigation rates and conditions and sampling-to-analysis intervals are presented with the residue data in Table 4.

Three composite samples of treated and control samples, each consisting of at least eight commodity units from at least four locations throughout the pallet, were collected. Composited samples were placed immediately on dry ice and shipped in a temperature-controlled truck (4 C ± 2 C) to the processing facility or analytical laboratory. Apple, grape, orange, and tomato RAC samples were shipped directly to the analytical laboratory (RAC 1). Additional RAC samples were shipped to the processing facility and samples for analysis before washing (RAC 2) and after washing (RAC 3) were collected for analysis. Grapes were not washed prior to processing and were sampled before (RAC 2) and after (RAC 3) bulk de-stemming. The RAC 2 samples were used for calculating concentration/reduction factors. Sweet corn was processed at the analytical laboratory to simulate cannery waste. Pertinent details of processing procedures are discussed in the individual crop sections below. Samples were maintained frozen until preparation for analysis. All samples were analyzed within the 12-hour target interval, with the exception of the tomato RAC 1 (15 hours) and two orange oil samples (20.5 hours).

The fumigation phases of these studies were conducted by Plant Sciences, Inc., Watsonville, CA. Processing of apples, grapes, oranges and tomatoes was conducted by the National Food Laboratory, Inc. (NFL), Dublin, CA. Residue analyses were performed by Bolsa Research Associates, Hollister, CA, using the modified King headspace method described above under Residue Analytical Methods. Concurrent recovery data and LOQs are presented in Table 2. Residues were nondetectable (below the LOQ) in control samples of all commodities.

Apples. Two separate processing studies were conducted with apples to obtain wet pomace (1994; MRID 43278701) and juice (1994; MRID 43343401). For pomace, apples in commercial cardboard boxes occupying 5% of the chamber capacity were fumigated at 5.2 lb ai/1000 ft^3 (~1x) for 2 hours. The chamber temperature was 13.4 and 12.4 C, respectively, before and after fumigation. For juice, apples occupying 1% of the chamber capacity were fumigated at 5 lb ai/1000 ft^3 (1x) for 2 hours. The pre- and post-fumigation chamber temperatures were 9.6 and 10.3 C, respectively. Apples from the two studies were processed using the same procedure. At NFL, apples were washed, ground into a slurry, and screened to separate wet pomace from juice. Unclarified juice was heated to 93 C and canned or filtered prior to canning. Two treated and two control samples of each commodity were analyzed in each study. Pre-analysis storage intervals were 5.5-8 hours. The residue data are summarized in Table 4. Methyl bromide residues were ~12 ppm (average) in RAC 2 apples prior to processing for pomace and 3.75 ppm in wet pomace. Two samples of RAC 2 apples processed for juice bore average residues of ~38 ppm. Residues declined to 3.3 ppm in fresh juice and 1.4 ppm in canned juice. Residues were nondetectable in all controls.

These apple processing studies are adequate. Residues did not concentrate in wet pomace or juice processed from apples bearing measurable methyl bromide residues. Residues declined to 31, 10, and <1% of the corresponding RAC residues, respectively, in wet pomace, fresh juice, and canned juice. No food or feed additive tolerance is required.

Grapes. Two separate processing studies were conducted with grapes to obtain wet pomace (1994; MRID 43278701) and juice (1994; MRID 43343401). For pomace, grapes in commercial wooden crates occupying 1% of the chamber capacity were fumigated at 4.1 lb ai/1000 ft^3 (~1x) for 2 hours. The chamber temperature was 6.8 and 9.4 C, respectively, before and after fumigation. For juice, grapes occupying 1% of the chamber capacity were fumigated at 4 lb ai/1000 ft^3 (1x) for 2 hours. The pre- and post-fumigation chamber temperatures were 10.8 and 8.5 C, respectively. Grapes from the two studies were processed using the same procedure. At NFL, grapes were washed (pomace study only), de-stemmed, crushed, heated to 60 C with enzyme to remove pectin, and pressed to separate wet pomace from juice. Unclarified juice was heated to 88 C and filtered prior to canning. Two treated (three for canned juice) and two control samples of each commodity were analyzed in each study. Sampling-to-analysis intervals were 5-8 hours. The residue data are summarized in Table 4. Methyl bromide residues were ~20 ppm (average) in grapes prior to processing for pomace and 1.56 ppm in wet pomace. Two samples of grapes processed for juice bore average residues of 12 ppm. Residues declined to 0.106 ppm in fresh juice

and <0.055 ppm in three samples of canned juice. Residues were nondetectable in all controls.

These grape processing studies are adequate. Residues did not concentrate in wet pomace or juice processed from grapes bearing measurable methyl bromide residues. Residues declined to 8% of the RAC residues in pomace and <1% in fresh and canned juice. No food or feed additive tolerance is required.

Oranges. Navel oranges (1994; MRID 43278701) in commercial cardboard boxes occupying 10% of the chamber capacity were fumigated at 3.3 lb ai/1000 ft^3 (1.1x) for 2 hours. Chamber temperatures were 16 C before fumigation and 13 C after. At NFL, juice was extracted, screened through a finisher to remove pulp, heated to 91-100 C, and canned. Peel and pulp were combined and shredded, lime was added, and the material was pressed into the wet pulp fraction. To obtain oil, fruit was peeled with an abrasion peeler under a fine water spray, oil was recovered as a water emulsion, and the emulsion was centrifuged to collect and clarify the oil. Two samples each of post-fumigation fruit, fruit at the processor (unwashed), and fruit, and wet pulp were analyzed. A total of four samples of orange oil were analyzed, two analyzed 8 hours after sampling and two analyzed after 20.5 hours for storage stability purposes. Pre-analysis intervals for the other samples were 6-11 hours. The residue data are presented in Table 4. Average methyl bromide residues were 4.58 ppm in RAC 2 oranges, 1.64 ppm in fresh juice, 0.55 ppm in pasteurized juice, and <0.02 ppm in wet pulp. Orange oil residues were 0.02 ppm from the early analysis and 0.05 ppm from the late analysis. Residues were nondetectable in all controls.

The citrus processing study is adequate. Residues did not concentrate in wet pulp, juice, or oil processed from oranges bearing measurable methyl bromide residues. Residues declined to 12-36% of the RAC residues in pasteurized and fresh juice and ≤1% in oil and wet pulp. No food or feed additive tolerance is required.

Sweet corn. Sweet corn ears (1994; MRID 43287001) in commercial wire-bound bushel crates occupying 1% of the chamber capacity were fumigated at 3.1 lb ai/1000 ft^3 (1x) for 4 hours. Pre- and post-fumigation chamber temperatures were 11.3 and 11 C. Cannery waste was prepared at the Bolsa laboratory to contain components that would not be present in the processed consumer product, including husks, silks, cobs after removal of kernels, unfilled, diseased, or discolored kernels, waste kernels, and small fragments such as corn embryos. Sampling-to-analysis intervals were 6-6.5 hours. The residue data are summarized in Table 4. Methyl bromide residues (three samples of each commodity) averaged ~31 ppm in sweet corn ears and 3 ppm in cannery waste. Residues were nondetectable in control samples of each matrix.

The sweet corn processing study is adequate. Methyl bromide residues did not concentrate in sweet corn cannery waste, declining to 10% of the RAC residues. No feed additive tolerance is required.

Tomatoes. Roma tomatoes (1994; MRID 43247401) in commercial cardboard boxes occupying 4% of the total chamber capacity, were fumigated at a rate of 3.1 lb ai/1000 ft^3 for 4 hours (1x). Pre- and post-fumigation chamber temperatures were 11.3 and 11 C. In processing, tomatoes were ground into a coarse puree, heated to 91-100 C, screened to separate pomace from juice, and the juice was canned at 116 C for 50 minutes. The RAC 2 (two samples), RAC 3 (three), wet pomace (two), and juice (three) samples were analyzed within 12 hours of collection. The four RAC 1 samples were analyzed within 15 hours of collection. Residues of methyl bromide were 22 ppm in RAC 2 tomatoes, and ≤ 0.01 ppm in wet pomace and canned juice (Table 4).

The tomato processing study is adequate. The data indicate the methyl bromide residues do not concentrate in wet tomato pomace or in canned juice, but decreased to $< 1\%$ of the RAC residue level. Food/feed additive tolerances are not required for methyl bromide in/on tomato processed fractions.

Table 4. Residues in apple, grape, orange, sweet corn, and tomato RAC and processed fractions following fumigation of the RACs with methyl bromide at ~1x and an in-chamber aeration.

Commodity [a]	Application Data			Sampling to Analysis Interval (hours)	Methyl Bromide Residues (ppm)	Concentration/ Reduction Factor [c]
	Rate (lb ai/1000 ft^3)	Fumigation Interval (hrs)	Commodity Temp. (C) [b]			
Apples RAC 1 (unwashed)	5.2	2	9.7, 9.4	8	17.33, 22.53 (19.93)	--
Apples RAC 2 (unwashed)				5.5	11.68, 12.37 (12.03)	1.0
Apples RAC 3 (washed)				5.5	7.60, 9.71 (8.66)	0.72
Apple wet pomace				7.5	3.36, 4.13 (3.75)	0.31
Apples RAC 1 (unwashed)	5	2	6.4, 10.2	7	34.7, 40.9 (37.8)	--
Apples RAC 2 (unwashed)				6.5	31.3, 32.4 (31.8)	1.0
Apples RAC 3 (washed)				6.5	31.6, 33.2 (32.4)	1.02
Apple juice (fresh)				7	3.07, 3.53 (3.30)	0.104
Apple juice (canned)				6.5	1.35, 1.46 (1.41)	0.044
Grapes RAC 1	4.1	2	8.7, 8.6	7.5	25.28, 25.5 (25.39)	--
Grapes RAC 2 (before de-stemming)				7	19.40, 21.00 (20.20)	1.00
Grapes RAC 3 (after de-stemming)				7	19.67, 21.92 (20.80)	1.03
Grape wet pomace				5	1.40, 1.73 (1.56)	0.08
Grapes RAC 1 (unwashed)	4.0	2	5.2, 4.9	8.5	12.4-17.1 (15.0)	--
Grapes RAC 2 (unwashed)				8	11.5, 12.4 (12.0)	1.00
Grapes RAC 3 (washed)				7	10.2, 11.4 (10.8)	0.90
Grape juice (fresh)				8	0.960, 1.16 (0.106)	0.088
Grape juice (canned)				7.5	<0.055	0.005
Oranges RAC 1 (unwashed)	3.3	2	12.8, 14	11	12.70, 15.86 (14.28)	--

(continued; footnotes follow)

Table 4 *(continued)*.

Commodity [a]	Application Data			Sampling to Analysis Interval (hours)	Methyl Bromide Residues (ppm)	Concentration/ Reduction Factor [c]
	Rate (lb ai/1000 ft^3)	Fumigation Interval (hrs)	Commodity Temp. (C) [b]			
Oranges RAC 2 (unwashed)				6	4.28, 4.88 (4.58)	1.00
Oranges RAC 3 (washed)				6	4.10, 4.15 (4.12)	0.90
Orange juice (fresh)				6.5	1.53, 1.75 (1.64)	0.36
Orange juice (pasteurized)				6	0.52, 0.58 (0.55)	0.12
Orange oil				8	0.02, 0.02	0.01
				20.5	0.05, 0.05	0.01
Orange wet pulp				6	<0.02, <0.02	<0.01
Sweet corn	3.1	4	8.6, 11.4	6.5	26.196-36.539 (30.806)	--
Sweet corn cannery waste				6	1.961-3.971 (2.989)	0.10
Tomato RAC 1 (unwashed)	3.1	4	8.8, 11.4	15	37.2-49.0 (41.3)	--
Tomato RAC 2 (unwashed)				11.5	20.9, 22.4 (21.7)	--
Tomato RAC 3 (washed)				11.5	22.0-30.1 (24.7)	1.1
Tomato wet pomace				8	0.0127, 0.0134 (0.0131)	0.0006
Tomato canned juice				11	<0.0057-0.0082 (0.0065)	0.0003

[a] Unwashed fumigated RAC 1 samples were collected immediately following fumigation. Unwashed fumigated RAC 2 samples were collected after shipment to the processing facility immediately prior to processing.

[b] The commodity temperature on the left is before fumigation and the temperature on the right is after fumigation.

[c] Concentration/reduction factor calculated relative to the unwashed RAC 2 samples.

MASTER RECORD IDENTIFICATION NUMBERS

The citations for the MRID documents used in this review are presented below.

43247401 Slesinski, R. (1994) Methyl Bromide Residues in Selected Raw and Processed Fractions From Fumigated Apples, Grapes, and Tomatoes and in Cannery Waste from Fumigated Beans and Corn; Part 1 of 3: Methyl Bromide Residues in Fumigated Tomatoes and Processed Fractions; Laboratory Project No. MEBR 94-02. Unpublished study prepared by TAS, Inc. 262 p.

43278701 Slesinski, R. (1994) Determination of Methyl Bromide Residues in Selected Fractions of Apples, Grapes, and Oranges following Fumigation and processing. Laboratory Project No. MEBR 94-01. Unpublished study prepared by TAS, Inc. 481 p.

43287001 Slesinski, R. (1994) Methyl Bromide Residues in Selected Raw and Processed Fractions From Fumigated Apples, Grapes, and Tomatoes and in Cannery Waste from Fumigated Beans and Corn; Part 2 of 3: Methyl Bromide Residues in Surrogate Cannery Waste from Fumigated Succulent Beans and Sweet Corn; Laboratory Project No. MEBR 94-02. Unpublished study prepared by TAS, Inc. 336 p.

43343401 Slesinski, R. (1994) Final Report: Methyl Bromide Residues in Selected Raw and Processed Fractions from Fumigated Apples, Grapes and Tomatoes and in Cannery Waste from Fumigated Beans and Corn: Part 3 of 3: Methyl Bromide Residues in Fumigated Apples and Grapes and Respective Juice Fractions: Lab Project Number: MEBR/94/02. Unpublished study prepared by Plant Sciences, Inc., Bolsa Research Associates, and The National Food Laboratory. 330 p.

AGENCY MEMORANDA CITED IN THIS DOCUMENT

CBRS No: 3890
Subject: Follow-up to Methyl Bromide Registration Standard. Post Harvest Protocol, Interim Plant Metabolism Report, Analytical Methods, and Storage Stability.
From: C. Deyrup
To: J. Kempter
Date: 7/14/88
MRID(s): 40579501, 40607801, and 40618501.

CBRS No.: 4399
Subject: Follow-up to Methyl Bromide Registration Standard. Methyl Bromide Industry Panel Response (9/22/88) to DEB Review of 7/14/88 on Postharvest Protocol, Analytical Methodology, and Storage Stability.
From: C. Deyrup
To: J. Kempter
Date: 11/3/88
MRID(s): None.

CBRS No.: 6879
Subject: Methyl Bromide Reregistration Letter and Attachments from the Methyl Bromide Industry Panel Dated 5/25/90.
From: N. Dodd
To: W. Francis
Date: 7/30/90
MRID(s): None.

CBRS No.: 8601
Subject: Methyl Bromide Industry Panel: Response to the Methyl Bromide Reregistration Standard: Metabolism Study.
From: R. Perfetti
To: W. Burnam and L. Rossi
Date: 9/24/91
MRID(s): None.

CBRS No.: 12733 and 12751
Subject: Response to the Methyl Bromide Reregistration Standard: Residue Data
From: R. Perfetti
To: L. Rossi
Date: 4/7/94
MRID(s): 42949601 and 42963801